

PROJECT NUMBER: 1307  
PROJECT TITLE: Reconstituted Tobacco Development  
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PERIOD COVERED: July, 1988

## I. IMPROVED SHEET PROPERTIES

A. Objective: Improve the physical characteristics and blend performance of reconstituted sheet materials.

B. Results:

1. ART Project - Subjective evaluation of ART stems in pilot RL showed no difference between 8% and 12% monopotassium citrate stems. Both are an improvement over the previous 17% monopotassium citrate ART stems, but are still subjectively detectable in 100% RL cigarettes when replacing 17% of the feedstock bright stems (only half of the projected use level). The 12% citrate stems were undetectable in 100% RL cigarettes when only 5% of the bright stems were replaced.

Marlboro blends showed no subjective differences on the large panel when either the 8% or 12% monopotassium citrate ART stems were included in pilot RL at half the projected use level (replacing 17% of the bright stems). At full utilization level (replacing 34%) the test Marlboros had lower liking scores, but this was not significant at the 95% confidence level.

Cigarettes (100% RL) representing a solubles-crossover experiment were submitted for evaluation. These would demonstrate how the subjective character attributed to ART stems is apportioned between the baseweb and the CEL.

ART stem stability studies show no significant trends in bacteria, yeast or mold counts for pre-ART citrated stems (35% OV) held in sealed containers for up to 72 hours, as-is post-ART stems (35% OV) held 24 hours, or dried post-ART stems (12% OV) held for 12 weeks.

Pilot RL sheets containing ART stems with 7.5% citric acid (included at half and full projected use levels) were made into blended cigarettes for subjective comparison to direct inclusion models.

A trial was conducted at Park 500 using coarse shredded (non-ART) stems to replace 1/3 of the feedstock bright stems (or 13% of the total feedstock). This was a necessary feasibility trial since Engineering had noted problems in pumping 100% shredded stems through an off-line Varinip extraction press. Coarse shredded stems were taken as a worst case (from a mechanical processibility standpoint) of any of the stem forms (shredded or CRS) that could be used in the ART process absorbers. There were no apparent operational problems.

2. Humectants - POL cigarettes to evaluate a glycerin-free Marlboro blend were remade in Semiworks. This totally depleted stocks of production glycerin-free sheet materials.

PG/glycerin-free Park 500 RL and BL Plant RCB sheets, containing added isosweet as humectant, are subjectively comparable to production control sheets. Since the test sheets used scrap to replace CT (to eliminate PG and glycerin in the feedstocks), "special controls" were also produced to evaluate the effect of only the feedstock change. The "special control" RL sheets were not subjectively different, but the RCB "special control" again showed significant negative subjective qualities. This is attributed to a lack of sugars caused by replacing the large cased CT component of RCB feedstock with uncased scrap. This implies that if for any future reason CT is removed from BL Plant feedstock, sugars in the RCB flavor system should be increased. It also implies that once PG/glycerin-free CT becomes available, a PG/glycerin-free RCB can be produced using less isosweet "humectant" than required for the CT-free test sheet (sugar is the main replacement for PG/glycerin in strip casings).

Pilot RL sheets containing no humectant and PG as the only humectant have been run through Semiworks at several OV levels for survivability testing. Glycerin and isosweet sheets are scheduled for August. This test is intended to determine the efficacy of humectants vs water for reducing attrition.

C. Plans:

1. Evaluate post-ART IS treatment of 12% monopotassium citrate ART stems to enhance their subjective acceptability in RL.
2. Expedite subjective results on monopotassium citrate ART stems solubles-crossover RL sheets.
3. Expedite subjective evaluation of pilot RL sheets containing citric acid ART stems.
4. Complete Semiworks processing of individual humectant sheets.

II. SUBJECTIVE MODIFICATION OF RL

A. Objective: Improve or modify the subjective character of RL.

B. Results:

1. Availability of the Branson ultrasonic rental unit for Modified 150B trials has been delayed to August. Installation will be coordinated with a 2 week pilot plant outage necessary to replace fire lines serving the building sprinkler system.
2. A sample of the Takasago finished liquid flavor was received and is being evaluated by Flavor Development. Takasago is

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also sending three native extracts representing different degrees of roasting. It is proposed to utilize the Flavor Center for blending of native extracts and final sugar adjustment to specifications. The use of liquids to replace dry flavors would allow size screening on the 150B lines at Park 500 and subsequently reduce waste water treatment loadings.

3. A 3,000 lb lot of pilot RLTC containing 31% oriental scrap in the feedstock was produced at the request of Leaf Department for potential evaluation as a means of adding oriental character to test blends.

C. Plans:

1. Produce pilot RL to evaluate Chart and Takasago liquid flavors as made available from Flavor Development.
2. Complete installation of the Branson ultrasonic rental unit.

III. CIGARETTE PAPER DEVELOPMENT

A. Objective: Support development of proprietary low sidestream cigarette papers.

B. Results:

1. A dedicated handsheet lab facility is being established for the purpose of developing a proprietary position in reduced sidestream cigarette papers. A laboratory has been refurbished. Industry standard testing equipment has been received; the standard handsheet mold, flat press and dryers are scheduled for delivery in early August. A supply of flax and carbonate is on hand and technician training is in progress.
2. The University of Maine has been contracted for development work on their pilot paper machine. Maine is currently developing freeness curves to characterize our flax stock. They have been expecting delivery of the proper mesh fourdrinier wire and plan to produce control cigarette paper on their machine in late August.

C. Plans:

1. Complete the installation and debugging of handsheet laboratory equipment.
2. Review flax stock characterization data from the University of Maine and arrange the production of control sheet on their pilot machine.

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